

Genuine recovery can only be possible after operations, and not in a similar measure through internal means. Early operation gives the best results, and the mortality is due in a great measure to operating the cases too late. One should make accurate estimations of the blood-pressure.

**VI. Pneumonia following Laparotomy.** By DR. KELLING, of Dresden. Kelling considers as predisposing factors age, alcoholism, carcinomatous cachexia, cardiac exhaustion, emphysema, long-continued dorsal position, and nervous irritation (pain, vasomotor stasis, and chilling). Laparotomized patients are predisposed to pulmonary stasis, especially in the right lower lobe. The organisms find their way into the lungs in three ways: First, along the bronchial tract; second, through the blood; and, third, along the lymphatics. The first occurs through aspiration of the contents of the buccal and nasal cavities, of the œsophagus and stomach during vomiting. One of the most dangerous conditions is the bronchitis, on account of the aspiration of the sputum to other parts of the lung. Second, embolic pneumonias occur through formation of thrombi in the veins.

In some cases, for example, in the case of the uterus and of the stomach, the veins communicate directly with the vena cava, and in others the lymphatics of the vein walls communicate with those of the mesenteric vessels. The latter is the case in suppurative appendicitis and in strangulated hernias.

The third manner of infection occurs through the lymphatics: (a) Through the perforating lymphatics of the diaphragm into the pleura. A pneumonia is developed from a pleurisy when the pulmonary tissue becomes œdematous from stasis. (b) Through the blood-vessels of the diaphragm. In this manner sepsis occurs, with hypostatic pneumonia and lobular inflammations, and formation of thrombi in other portions of the venous system which are predisposed to it.

Kelling believes that air infection plays much more of a rôle after laparotomy than is ordinarily the case in wounds. The

chief factor in prophylaxis is to avoid infection of the parenchymatous organs, of the mesentery and of the free peritoneal cavity. Aside from aspiration pneumonia, the number of cases of postoperative pneumonia runs parallel with the percentage of infection.

In the discussion of this paper, CZERNY, of Heidelberg, reported 52 pneumonias in 1300 of his laparotomies. They are twice as frequent after the age of forty as before. Whether abuse of alcohol or tobacco plays any rôle is not certain. As regards sex, the percentage is equal, but occurs predominantly in obese people. In 4 cases the pneumonia was preceded by bronchitis; in 5 by emphysema; in 4 by cardiac weakness, and in 6 by pneumonia. The variety of anæsthetic seems to have no influence. Thirty followed chloroform; 11 chloroform and oxygen, and 3 Schleich's anæsthesia. Fifty per cent. of the cases were due to aspiration pneumonia. Aspiration after operation seems to be more frequent after wounds that have been sutured, on account of the severe pain which caused suppression of breathing and coughing. Fourteen of the operations were on the bile passages; 11 on the female genitalia; 12 gastro-enterostomies, and 12 resection of the stomach. Operations in the neighborhood of the diaphragm favor infection through limiting breathing. Operations in the upper portion of the abdomen constituted two-thirds of the total number. The right side is more frequently infected than the left. Appendicitis, which represented 14 per cent. of the total number of operations, constituted only 2 per cent. of the pneumonias. Twenty per cent. of pneumonias in gynæcological operations is quite striking, especially so as they only constituted 10 per cent. of the total number of operations. For lack of any other explanation, Czerny ascribes this to the Trendelenburg position. Of the 52 cases of pneumonia, 31 recovered, and 21 died in spite of primary union of the wounds. Croupous pneumonia occurred 12 times; gangrenous pneumonia 8 times; and 5 times there was pleurisy. Czerny considered as

very important to have the patient's buccal cavity and bronchial tract in as good condition as possible before the operation, and also to preserve the strictest asepsis during the time.

KÜMMELL, of Hamburg, was of the opinion that the anæsthetic played a great rôle, being especially frequent after ether, on account of the fact that the climate of Hamburg favors catarrh. Chloroform was used in 1754 of 2351 cases. Forty-three of these, that is 2.4 per cent., died of pneumonia. The average duration of the anæsthesia was forty to fifty minutes. The mixture of oxygen with chloroform seems to render the anæsthesia less dangerous. He has noticed a decided improvement since the use of five to eight decimilligrammes of scopolamine and one centigramme of morphine about an hour and a half before the anæsthetic. The scopolamine through drying up the secretions prevents their aspiration, so that even ether can be given after it. Since using this method, he has performed 409 laparotomies, with only 3 deaths due to pneumonia, *i.e.*, about five times less than before. He considers this combined anæsthesia a very humane one. He encourages his patients to breathe deeply as early as possible.

SCHLOFFER, of Innsbruck, reported the following table as the result of observations of embolic pulmonary complications in his clinic during the last year and a half:

No. OF CASES.	DIED.			NATURE OF LESION IN ALL OF THOSE AFFECTED.	
	Total.	Pulmonary complications.	Embolic pulmonary complications.	Pulmonary complications.	Embolic pulmonary complications.
Total number of operations . . . . . 1600	40	22	3	. .	. .
Goitre operations . . . 107	2	2	1	29	2
Laparotomies which include gangrenous herniæ . . . . . 142	25	7	2	8	2
Herniotomies . . . . . 403	. .	. .	. .	8 (70)	3

In 403 radical cures of hernia operations (non-strangulated), half of which were performed by Wölfler, and the other half by the Bassini, embolic pneumonia occurred three times, and always after Bassini operation. He would not state, however, that the formation and transportation of thrombi from the pampiniform plexus occurred more frequently after the Bassini than after the Wölfler. He was of the opinion, however, that the lesser degree of isolation of the vas deferens and the diminished liability of shaking of the cord through coughing spoke in favor of the Wölfler in this respect.

TRENDELENBURG, of Leipzig, was of the opinion that pneumonia followed all varieties of operation in about 1 per cent. of the cases, and laparotomies in 5 per cent. According to his observation, gastrostomies were complicated by pneumonia in 3 per cent.; gall-passage operations, 6.4 per cent.; severe contusion, 15 per cent.; appendicitis, 5 per cent.; exploratory laparotomy, 4.7 per cent. His own experience in regard to the frequency after the operations on the female genitalia was that it was only present in 2.8 per cent. of the cases, instead of the 10 per cent., as reported by Czerny. Of 85 patients who had pneumonia, 52 died, *i.e.*, 60 per cent.

FRANKE, of Brunswick, confirmed the opinion of Kelling that pneumonia sometimes occurs in epidemic forms in hospitals. It occurred so frequently in his experience several years ago that for a time he debated performing any laparotomy at all. He began medication as soon as there was the least suspicion of pneumonia, giving antipyretics, salicylates, and digitalis. If the cough was dry, he gave liquor ammonia anisatus. If the cough was very irritating, he gave codeine. Medicine can be given per rectum with equally good results.

KLAUSCH, of Breslau, reported 1880 laparotomies from von Mikulicz's clinic, with 45 pneumonias, that is, 2.4 per cent., of whom 28 died, 1.4 per cent. He laid special stress upon prophylaxis, avoidance of chilling of the patient, wrapping up the limbs

well, irrigations with warm salt solution, having the bed well warmed, gastric lavage, especially before obstruction operation. Pneumonias are more frequent after operations close to the diaphragm than lower down in the abdominal cavity. The more frequent mode of transmission of the infection is in all probability along the lymphatics. He believes that ether is even less likely to be followed by pneumonia than other forms of anæsthesia. Their mode of procedure in laparotomies is to avoid local anæsthesia, and even the use of morphine and scopolamine. He did not believe in its occurring in an epidemic form.

FRIEDREICH, of Greifswald, laid special stress upon the lack of value of statistics, since those of Czerny and Trendelenburg differed so radically. A sharp distinction ought to be made according to the variety of pneumonia. He was of the same opinion as Czerny, that the majority of these cases were those of aspiration pneumonia; that croupous pneumonia ought not to come into these statistics at all, and the same was true of embolic pneumonias and of the hypostatic variety. He believes that the manner, the depth, and the duration of the anæsthesia play a great rôle in the etiology of the aspiration form; whereas the dyspnœa following operation plays an equally important rôle in the etiology of the hypostatic form. He believes that we can avoid many cases of hypostatic through the more liberal use of morphine to prevent the pain and the resultant suppression of breathing.

ROTTER, of Berlin, observed several cases of bronchitis, but never any pneumonia, in 200 scopolamine anæsthesias.

LENHARTZ, of Hamburg, believes that aspiration plays the principal rôle in the origin of pneumonias after anæsthesia, and recommends frequent change of position after the operation.

KRÖNLEIN, of Zurich, observed 8 cases of pneumonia in 1409 laparotomies. He has had entire years, for example, the year 1904, with 407 laparotomies, and no pneumonia. Attention to the minutest details is of the greatest importance. The anæ-

thesia should be as brief as possible, and as small an amount of ether of the very best quality used. All preparation of the patient is carried out before the anæsthetic is administered, and this greatly decreases the amount of ether used. The sponges used in the abdominal cavity are dry, except those which are utilized to hold the intestines aside, which are wet. He observes the strictest asepsis and as little manipulation as possible.

PAYR, of Graz, in order to confirm anatomically the transmission of infection from the peritoneal to the thoracic cavity, injected colored fluid into the central tendon of the diaphragm of dogs. After eighteen minutes some of them were killed. The carmine used was found in the lymphatics as high as the level of the bronchi. Seven minutes later it was found in the blood of the carotid artery.—*Proceedings of the German Surgical Congress, 1905.*

## VII. Postoperative Prolapse of the Abdominal Viscera.

By PROFESSOR MADELUNG (Strasburg). Very little reference to this in the text-books. Madelung collected 144 cases from the literature, and added 13 from his own and the practice of his colleagues. May follow laparotomy at any age or sex, and any in which even a simple exploratory laparotomy has been performed, as well as follow cases where large tumors have been extirpated. It follows especially incision in the lower half of the abdomen. It is not exclusively confined to incisions in the median line, but may happen after operation in which the incision has been made through the rectus, or even lateral to it. So far as Madelung could ascertain, it had never followed an operation upon the bile passages. He has observed it several times after enterostomy. It is especially likely to follow in cases where several laparotomies have been performed upon the same patient. The critical days are the eighth and ninth after the operation. He has collected 18 cases in which a laparotomy scar has given way. In one case five months, and in another even twelve years